

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 - 40. (cancelled)

41. (new) A method for simultaneous multi-user editing of a document by a plurality of users including a first user and a second user, wherein the document includes primary data, the method comprising:

- (a) dividing the primary data into two or more sections;
- (b) storing each of the sections in a separate primary container, wherein each of the primary containers is part of a master document tree data structure stored in a file system accessible to a server;
- (c) transmitting a copy of at least part of the master document tree from the server to a first client operated by the first user;
- (d) transmitting a copy of at least part of the master document tree from the server to a second client operated by the second user;
- (e) receiving a first lock request from the first client, the first lock request identifying a first group of primary containers and wherein the first group of primary containers corresponds to a first part of the document;
- (f) determining whether the first user may lock each of the primary containers in the first group of primary containers by at least ensuring that no primary container in the first group of primary containers is locked by a user other than the first user;
- (g) if the result in (f) is that the first user may lock each of the primary containers in the first group of primary containers, then:
 - (i) locking each of the primary containers in the first group of primary containers and identifying each of the primary containers in the first group of primary containers as being locked by the first user;
 - (ii) transmitting a first confirm lock message to the first client;

- (iii) transmitting a first update message to the second client, wherein the first update message indicates that each primary container in the first group of primary containers has been locked;
- (iv) receiving a first post request from the first client, wherein the first post request includes one or more new or modified primary containers storing a modified version of the first part of the document;
- (v) modifying the master document tree in accordance with the first post request; and
- (vi) transmitting a second update message to the second client, wherein the second update message includes the one or more new or modified primary containers storing the modified version of the first part of the document; and

(h) if the result in (f) is that the first user may not lock each primary container in the first group of primary containers, then transmitting a refused lock message to the first user.

42. (new) The method of claim 41 wherein in (g)(iii), the first update message also indicates that each primary container in the first group of primary containers has been locked by the first user.

43. (new) The method of claim 41 wherein in (g)(vi), the second update message also indicates that the one or more new or modified primary containers storing the modified version of the first part of the document have been posted by the first user.

44. (new) The method of claim 41 including:

- (j) receiving a second lock request from the second client, the second lock request identifying a second group of primary containers wherein the second group of primary containers corresponds to a second part of the document;
- (k) determining whether the second user may lock each of the primary containers in the second group of primary containers by at least ensuring that no primary container in the second group of primary containers is locked by a user other than the second user;

- (l) if the result in (k) is that the second user may lock each of the primary containers in the second group of primary containers, then:
 - (i) locking each of the primary containers in the second group of primary containers and identifying each of the primary containers in the second group of primary containers as being locked by the second user;
 - (ii) transmitting a second confirm lock message to the second client;
 - (iii) transmitting a third update message to the first client, wherein the third update message indicates that each primary container in the second group of primary containers has been locked;
 - (iv) receiving a second post request from the second client, wherein the second post request includes one or more new or modified primary containers storing a modified version of the second part of the document;
 - (v) modifying the master document tree in accordance with the second post request; and
 - (vi) transmitting a fourth update message to the first client, wherein the fourth update message includes the one or more new or modified primary containers storing the modified version of the second part of the document; and
- (m) if the result in (k) is that the second user may not lock each of the primary containers in the second group of primary containers, then transmitting a refused lock message to the second user.

45. (new) The method of claim 44 wherein in (l)(iii), the third update message also indicates that each primary container in the second group of primary containers has been locked by the second user.

46. (new) The method of claim 44 wherein in (l)(vi), the fourth update message also indicates that the one or more new or modified primary containers storing the modified version of the second part of the document have been posted by the second user.

47. (new) The method of claim 41 including:

- (g)(v) unlocking at least some of the new or modified primary containers.

48. (new) The method of claim 47 including:

- (i) receiving a second lock request from the second client, the second lock request identifying a second group of primary containers, wherein the second group of primary containers corresponds to a second part of the document and wherein at least one of the primary containers in the second group of primary containers was included in the first post request;
- (k) determining whether the second user may lock each of the primary containers in the second group of primary containers by at least ensuring that no primary container in the second group of primary containers is locked by a user other than the second user;
- (l) if the result in (k) is that the second user may lock each of the primary containers in the second group of primary containers, then:
 - (i) locking each of the primary containers in the second group of primary containers and identifying each of the primary containers in the second group of primary containers as being locked by the second user;
 - (ii) transmitting a second confirm lock message to the second client;
 - (iii) transmitting a third update message to the first client, wherein the third update message indicates that each primary container in the second group of primary containers has been locked;
 - (iv) receiving a second post request from the second client, wherein the second post request includes one or more new or modified primary containers storing a modified version of the second part of the document;
 - (v) modifying the master document tree in accordance with the second post request; and
 - (vi) transmitting a fourth update message to the first client, wherein the fourth update message includes the one or more new or modified primary containers storing the modified version of the second part of the document; and
- (m) if the result in (k) is that the second user may not lock each of the primary containers in the second group of primary containers, then transmitting a refused lock message to the second user.

49. (new) The method of claim 48, wherein in (I)(iii), the third update message also indicates that each primary container in the second group of primary containers has been locked by the second user.

50. (new) The method of claim 48, wherein in (I)(vi), the fourth update message also indicates that the one or more new or modified primary containers storing the modified version of the second part of the document have been posted by the second user.

51. (new) The method of claim 41 wherein the primary data type of the document is text and wherein each section of the document corresponds to one of the following:

- (a) a character;
- (b) a word;
- (c) a sentence; and
- (d) a paragraph.

52. (new) The method of claim 41 wherein the primary data type of the document is text and wherein each section of the document corresponds to one of the following:

- (a) a group of paragraphs; and
- (b) a chapter.

53. (new) The method of claim 51 wherein each separate primary container is a sibling container and wherein storing each section in a separate primary container includes:

- (i) storing each section in a sibling container;
- (ii) linking each of the sibling containers to form the sibling containers into a linked list corresponding to the order of the sections in the document;
- (iii) recording a link to the head container in the parent container; and
- (iv) recording a link to the tail container in the parent container.

54. (new) The method of claim 53 wherein each of the sibling containers includes an article containing the text of the section corresponding to the sibling container.

55. (new) The method of claim 51 wherein each separate primary container is a sibling container and wherein storing each section in a separate primary container includes:

- (i) storing each section in a sibling container;
- (ii) linking each of the sibling containers to form the sibling containers into a doubly linked list corresponding to the order of the sections in the document;
- (iii) recording a link to the head container in the parent container; and
- (iv) recording a link to the tail container in the parent container.

56. (new) The method of claim 55 wherein each of the sibling containers includes an article containing the text of the section corresponding to the sibling container.

57. (new) The method of claim 51 wherein one of the sections includes embedded data of a secondary data type, wherein the secondary data type is different from the primary data type and wherein the embedded data is stored in a sub-tree headed by the sibling container corresponding to the one section.

58. (new) The method of claim 57 wherein the one section also includes data of the primary data type and wherein the data of the primary data type is stored in the sibling container corresponding to the one section.

59. (new) The method of claim 57 wherein the one section contains no data other than the embedded data.

60. (new) The method of claim 41 wherein the document also includes summary information and wherein the document tree data structure includes a parent container and wherein each of the primary containers is a child of the parent container, and further:

- (j) storing the summary information in the parent container;
- (k) receiving a second lock request from the second client, the second lock request identifying the parent container;
- (l) determining whether the parent container may be locked by the second user by at least ensuring that the parent container is not locked by a user other than the second user;

- (m) if the result in (l) is that the second user may lock the parent container, then:
 - (i) locking the parent container and identifying the parent container as being locked by the second user;
 - (ii) transmitting a confirm lock message to the second client;
 - (iii) transmitting a third update message to the first client, wherein the third update message indicates that the parent container has been locked;
 - (iv) receiving a second post request from the second client, wherein the second post request includes a modified version of the parent container;
 - (v) modifying the master document tree in accordance with the second post request; and
 - (vi) transmitting a fourth update message to the first client, wherein the fourth update message includes the modified version of the parent container; and
- (n) if the result in (l) is that the second user may not lock the parent container, then transmitting a refused lock message to the second user.

61. (new) The method of claim 60 wherein in m(iv) and in m(vi), the modified version of the parent container stores a modified version of the summary information.

62. (new) The method of claim 60 wherein in (m)(iii) the third update message also indicates that the parent container has been locked by the second user.

63.(new) The method of claim 60 wherein in (m)(vi), the fourth update message also indicates that the modified version of the parent container storing the modified version of the summary information has been posted by the second user.

64. (new) The method of claim 41 wherein the document tree is part of a container tree data structure and wherein the container tree data structure includes other document trees corresponding to other documents.

65. (new) The method of claim 64 wherein container tree data structure has a root node and wherein each of the document trees has a parent node linked to the root node.

66. (new) The method of claim 41 further including:

- (i) assigning each user a unique user handle;
- (ii) recording a user's privilege level to access a section of the document by storing the user's handle in the associated container together with any restrictions on the user's permission to access the section; and
- (iii) wherein in (f) determining that the first user can lock each of the primary containers in the first group of primary containers also includes ensuring that the first user's privilege level allows the first user to lock each of the primary containers in the first group of primary containers.

67. (new) A method for simultaneous multi-user editing of a document by a plurality of users including a first user and a second user, wherein the document includes primary data and summary information, the method comprising:

- (a) storing the summary information in a parent container;
- (b) dividing the primary data into two or more sections;
- (c) storing each of the sections in a separate primary container, wherein each of the primary containers is a child of the parent container, and wherein the parent container and the primary containers form part of a master document tree data structure stored in a file system accessible to a server;
- (d) transmitting a copy of at least part of the master document tree from the server to a first client operated by the first user;
- (e) transmitting a copy of at least part of the master document tree from the server to a second client operated by the second user;
- (f) receiving a first lock request from the first client, wherein the first lock request identifies a first group of primary containers and wherein the first group of primary containers corresponds to a first part of the document;
- (g) ensuring that the first user may lock the primary containers in the first group of primary containers by at least ensuring that none of the primary containers in the first group of primary containers is locked by a user other than the first user;

- (h) locking each of the primary containers in the first group of primary containers and identifying each of the primary containers in the first group of primary containers as being locked by the first user;
- (j) receiving a second lock request from the second client, the second lock request identifying the parent container;
- (k) ensuring that the second user may lock the parent container by at least ensuring that the parent container is not locked by a user other than the second user; and
- (l) locking the parent container and identifying the parent container as being locked by the second user.

68. (new) The method of claim 67 wherein (l) further includes:

- (i) transmitting a confirm lock message to the second client;
- (ii) transmitting a first update message to the first client, wherein the first update message indicates that the parent container has been locked;
- (iii) receiving a first post request from the second client, wherein the first post request includes a modified version of the parent container;
- (iv) modifying the master document tree in accordance with the first post request; and
- (v) transmitting a second update message to the first client, wherein the second update message includes the modified version of the parent container.

69. (new) The method of claim 68 wherein in (l)(iii) and in (l)(v), the modified version of the parent container stores modified summary information.

70. (new) The method of claim 68 wherein in (l)(ii) the first update message also indicates that the parent container has been locked by the second user.

71. (new) The method of claim 69 wherein, in (l)(v) the second update message also indicates that the modified version of the parent container has been posted by the second user.

72. (new) The method of claim 68 wherein (h) further includes:

- (i) transmitting a first confirm lock message to the first client;
- (ii) transmitting a first update message to the second client, wherein the first update message indicates that each primary container in the first group of primary containers has been locked;
- (iii) receiving a first post request from the first client, wherein the first post request includes one or more new or modified primary containers storing a modified version of the first part of the document;
- (iv) modifying the master document tree in accordance with the first post request; and
- (v) transmitting a second update message to the second client, wherein the second update message includes the one or more new or modified primary containers storing a modified version of the first part of the document.

73. (new) The method of claim 72 wherein in (h)(ii), the first update message also indicates that each primary container in the first group of primary containers has been locked by the first user.

74. (new) The method of claim 72 wherein in (h)(v) the second update message also indicates that the one or more new or modified primary containers storing the modified version of the first part of the document have been posted by the first user.

75. (new) The method of claim 68 wherein at least one of the primary containers stores change tracking information.

76. (new) The method of claim 69 wherein the document also includes formatting information, and wherein the formatting information is stored in the parent container and wherein in (l)(iii) and in (l)(v) the modified version of the parent container includes modified formatting information.

77. (new) The method of claim 68 wherein the formatting information includes change tracking information.